



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,358	07/18/2001	Miri Park	40682/MJM/A717	1227
23363	7590	12/05/2003	EXAMINER	
CHRISTIE, PARKER & HALE, LLP			CHEN, KIN CHAN	
350 WEST COLORADO BOULEVARD				
SUITE 500			ART UNIT	PAPER NUMBER
PASADENA, CA 91105			1765	

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/909,358	PARK ET AL.
	Examiner	Art Unit
	Kin-Chan Chen	1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 27 October 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 25-29 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0701.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of group I, claims 1-24 (October 27, 2003) is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. Claims 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, "relative thin" and "relative thick" are vague and indefinite because the metes and bounds of the claim are unclear.

In claim 10, "one of of before" is vague and indefinite it is unclear as to the meaning of the clause.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

3. Claims 1- 4, 10, 13, 18, and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chou (US 5,772,905).

In a method for patterning a substrate, Chou teaches that a substrate may be provided. A negative image of a pattern may be provided in a fixed medium on a body (so-called imprint master in the claimed invention). The body may be silicon or other materials. Therefore, it is expected that it is mechanically relatively flexible as compared with typical steel mold. A deformable material (such as polymer) may be formed over a surface of the substrate. The deformable material may be contacted with the negative image of the pattern thereby the deformable material is deformed into the pattern over the surface of the substrate. The body (imprint master) may be removed from the substrate and the pattern may be transferred into the substrate. The step of heating may be performed during the step of contacting. The substrate may be etched using the deformable material as a mask. See col. 4, lines 7-55; col. 6, lines 13-18 and 31-40.

4. Claims 5-9, 11, 12, 14-17, 19-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (US 5,772,905).

In a method for patterning a substrate, Chou teaches that a substrate may be provided. A negative image of a pattern may be provided in a fixed medium on a body

(so-called imprint master in the claimed invention). The body may be silicon or other materials. Therefore, it is expected that it is mechanically relatively flexible as compared with typical steel mold. A deformable material (such as polymer) may be formed over a surface of the substrate. The deformable material may be contacted with the negative image of the pattern thereby the deformable material is deformed into the pattern over the surface of the substrate. The body (imprint master) may be removed from the substrate and the pattern may be transferred into the substrate. The step of heating may be performed during the step of contacting. The substrate may be etched using the deformable material as a mask. See col. 4, lines 7-55; col. 6, lines 13-18 and 31-40.

As to claim 5, Chou is not particular about the substrate being used in the process. Hence, it would have been obvious to one with ordinary skilled in the art to use a composite of a layer of InP formed over InGaAsP or InGaAs. Because it is one of most popular materials used in the semiconductor and optoelectronics industries.

As to dependent claim 14, because Chou teaches that the invention is suitable for where nanolithography is required (col. 4, lines 4-6). Hence, it would have been obvious to one with ordinary skilled in the art to have the pattern that includes a grating structure because it is a very common structure in optoelectronics industries.

As to claim 19, Chou recites examples of materials for fixed medium and the body (imprint master) and is not limited to materials being used in the process. Hence, it would have been obvious to one with ordinary skilled in the art to use PDMS. Because it is one of most popular materials used in the semiconductor and optoelectronics industries.

Dependant claim 24 differs from the prior art by specifying various sizes and dimensions. Because same are merely a matter of choices of design depending on the product requirements, it would be obvious to one skilled in the art to use various dimensions for fabricating a semiconductor or optoelectronics device in order to accommodate the specific product design and meet the product requirement.

The above-cited claims differ from Chou by specifying well-known features and common practices (such as using mold release, forming the pattern by optical or e-beam lithography followed by RIE) to the art of semiconductor or optoelectronics device fabrication. It is the examiner's position that a person having ordinary skill in the art at the time of the claimed invention would have found it obvious to modify Chou by adding any of same well-known features (and common practices) to same in order to provide their art recognized advantages and produce an expected result.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lin et al. (US 5,358,604) and Nebashi et al. (US 6,120,870) teach patterning a substrate using a negative image of a pattern.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (703) 305-0222. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

Application/Control Number: 09/909,358
Art Unit: 1765

Page 6

supervisor, Nadine Norton can be reached on (703) 305-2667. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2934.



Kin-Chan Chen
Primary Examiner
Art Unit 1765